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ABSTRACT

A study was conducted in 52 African countries to determine the extent of braille facilities for the blind, with the aim of choosing a location for a central braille producing facility. To make the selection, the factors of ease of communication (i.e., central location), political stability, and extent of already existing organizations for the blind were considered for each country. Ten possible choices are identified in Chapter 1, in a table showing population, literacy level, per capita income, and languages spoken. Chapter 2 presents a cost analysis of the braille producing methods of handcopied braille, press braille, and paperless braille. Nine appendices provide statistical and evaluation data in terms of: (1) geographic and economic conditions, (2) education and library statistics, (3) political conditions, (4) spoken languages, (5) published languages, (6) population tabulation, (7) braille capabilities, (8) a questionnaire and responses, and (9) independent evaluations. The problem of many indigenous languages (thus, the limited value of using one central language) is mentioned. (SW)

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AFRICAN BRAILLE PRODUCTION

A STATISTICAL REVIEW AND EVALUATION OF COUNTRIES AND COSTS

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INTRODUCTION

This study was pursued under contract number 594960 for the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the International Federation of Library Associations and Institutions (IFLA).

Our purpose is the identification of those African countries that have the most suitable conditions to operate and maintain a central braille facility for the developing nations of the African continent. A second objective is the development of a cost analysis for such a braille facility.

A preliminary presentation of this study will be made at the IFLA Working Group in August 1979, with a recommendation to present it to an African-International Conference, tentatively scheduled for late 1980 in Arusha, Tanzania. It is our desire that the recommendations we proffer will act as the catalyst for a movement toward greater braille cooperation on the African continent, whether in the form of a single central facility or facilities in several decentralized locations. This is but one approach.

Chapter one and Appendixes I through VII are statistical evaluations of each African country. Appendix VIII is the questionnaire we sent to a number of countries and the responses we received. Our approach has been to conduct a systematic study of each country, its languages, economy, educational levels, existing organizations or operations for the blind, and political conditions, in order to identify those countries best suited to conduct such a project. (Political conditions considered were those present in early and mid-1979.) Based on this evaluation, we have made recommendations concerning those countries most likely to succeed in a cooperative braille venture.

Chapter two is a cost analysis of various braille production methods. Such an evaluation requires the analysis of a facility not only from the standpoint of cost, but of practicality, based on technical capabilities within developing countries. That capability exists for some countries, since a number of countries presently have thermoform machines and others have stereotype machines and trained operators. This analysis is not intended as a detailed accounting of a particular capability, but rather an overview and gross approximate to assist in the determination of the most economical and practical braille system.

Appendix IX contains three independent evaluations of the cost and country analyses. These are integral parts of this study, since they offer suggestions worthy of discussion at an international level.

In presenting these recommendations we recognize that there are a great many factors which do not lend themselves to a statistical survey, but which must be given careful consideration prior to proceeding with a project of this nature.

---First and foremost is the question of who the project would serve. If we assume that only an educated blind minority can read or has use for braille, then our program would reach only a handful of blind people. England has restricted mailing of braille items to African countries because of what they believe is a low priority need.

---Second, we must consider the fact that most emerging nations have strong nationalistic feelings. Furthermore, the experience of England and France has been that a lack of technical expertise exists to repair braille machines.

---Third, and equally important, is the possible language barrier. If a central braille facility is to serve the greatest number of blind individuals, then the capability must exist to produce braille in a variety of languages.

These topics should be major items in a discussion agenda.

ABBREVIATION INDEX

AR = AREA IN SQ MILES
BPOP = BLIND POPULATION (ESTIMATED)
CONFLICT = INTERNATIONAL CONFLICT
GNP = PER CAPITA INCOME
INDEP = DATE OF INDEPENDENCE
INTERNAL = INTERNAL STRIFE
ISLAND = MAINLAND OR ISLAND COUNTRY
LANGUAGE = LANGUAGE SPOKEN IN COUNTRY
LIBS = NUMBER OF LIBRARIES FOR THE SIGHTED
LITB = LITERACY RATE OF THE BLIND
LITS = LITERACY RATE OF SIGHTED
MOTHER = MOTHER COUNTRY
ORG = ORGANIZATIONS FOR THE BLIND
POPULAT = POPULATION
PUBLIN = LANGUAGE PUBLISHED IN COUNTRY
PUBLOUT = COMPANY PUBLISHING LANGUAGE OUTSIDE COUNTRY

CHAPTER 1

IDENTIFICATION OF COUNTRIES

Before proceeding to an evaluation of the data, a brief explanation of terms and appendixes is necessary:

Explanation of Listings:

Appendix I is a geographic and economic breakdown of each country. We have only considered the fifty-two African countries which are independent. Several island countries which are listed as part of Africa (such as Reunion) are still under colonial rule and therefore not included. The blind population (BPOP) given is an estimated figure based on the population of the country multiplied by a factor of 1%. Discussions with Helen Keller International, Inc. (HKI) indicate the percentage of blindness for African countries to be between 1% and 2%. Our figures are conservative estimates and (except in certain cases where actual figures were obtained) indicate simply a proportional relationship. (Appendix VI indicates the relationship of blind populations by country.)

Appendix II is a list of educational and library statistics for each country. (Literacy rates and number of libraries were not available for all countries.) The "ORG" column lists all known agencies serving the blind within each country.

Appendix III indicates some of the political conditions in each country. Internal strife ("INTERNAL") indicates there are conditions within the country which make the existing situation extremely unstable and changes in policy likely. "CONFLICT" indicates the nation is in conflict with other countries.

Appendix IV is a breakdown of the major languages spoken in the African nations. This area is particularly difficult to itemize since there are more than one thousand different languages in use throughout the continent, and most are spoken by 100,000 or fewer people. This list represents the most common languages. The numbers in the frequency column represent the number of countries in which these languages are used.

Appendix V indicates which languages are spoken in each country and whether or not the language is published for the sighted.

Appendix VII is a summary of the kinds of braille capabilities available in each country as indicated by HKI.

Approach and Evaluation 1/

Statistics are often misleading! That axiom is no different for these statistics. A case in point is the GNP of Libya. While Libya is listed as having the highest per capita income on the continent, the figure is inflated due to the high oil income which is received by a minority of the people. Another example is the literacy rate for the sighted population (LITS). The same inflation occurs when we realize that literacy is most prominent among the minority population of each country and low for many other nationals. Keeping these inherent problems in mind, we were able to proceed cautiously in making our final selections.

Our approach in identifying the countries best suited to a central braille facility became, first, one of eliminating those countries least suited to the task by virtue of location, local conditions, and expertise. The criteria for consideration included the following factors:

1. Countries with organizations for the blind or braille production capacity;

2. Mainland countries only (Island nations would probably have greater communication and transportation problems);

3. For the most part, countries which are not involved in conflict. (The only exception was Tanzania, due to its strong internal leadership and great accomplishments in services to the blind.)

When applying these considerations to the fifty-two original nations, we narrowed the field to ten countries most suitable and likely to succeed. These countries are described in Figure #1.

In establishing which countries would be best suited to the task, a few observations from Figure #1 are helpful:

Tanzania and Kenya have the highest estimated blind populations.

Swaziland and Kenya have the highest literacy rates.

Swaziland and the Ivory Coast have the highest per capita income.

Tanzania, Senegal, and Kenya have the greatest number of libraries for the sighted.

The countries which are politically the strongest are Tanzania, Gambia, the Ivory Coast, Kenya, and Liberia.

Based on these observations we recommend Tanzania, the Ivory Coast, or Kenya as the best possible locations for a central braille facility. We further recommend that a committee of African nations make the final selection for a central braille facility based on expertise, willingness, and equipment on hand.

1/ Full documentation is available in the files of the National Library Service for the Blind and Physically Handicapped, Library of Congress.

COUNTRIES FOR CONSIDERATION FOR AFRICAN BRAILLE PROJECT

COUNTRY	BFOP	LITS	LITS	GNP	LANGUAGE
CAMEROON	75000	.12	9	$290.00	ENGLISH FRENCH GERMAN
ZAMBIA	4720	.10	1	$180.00	ENGLISH
IVORY COAST	67000	.20	8	$580.00	ENGLISH FRENCH
KENYA	130000	.25	22	$240.00	ARABIC ENGLISH LUGANDA SESOTHO SWAHILI
LIBERIA	15300	.10	4	$410.00	ENGLISH FRENCH GERMAN ITALIAN SPANISH
MALAWI	53100	.22	11	$140.00	BANTU CHICHEWA ENGLISH FRENCH
MALI	63000	.10	8	$100.00	BAMBARA FRENCH
SENEGAL	54750	.10	31	$290.00	FRENCH
SWAZILAND	5200	.36	4	$570.00	AFRIKAANS ENGLISH SISWATI
TANZANIA	150000	.10	23	$180.00	ENGLISH SWAHILI

FIGURE #1

CHAPTER 2

COST ANALYSIS OF RNASE3 PREDICTING METHODS

Braille Production Methods

This evaluation includes three braille producing methods:

Handcopied Braille
Press Braille
Electronic Paperless Braille

Compositor tapes were not considered because of their dependence on computers.

Each method was considered from the standpoint of three major cost considerations:

Personnel
Equipment
Material

A comprehensive cost analysis was constructed for a hypothetical facility and applied to each of the three methods. In this way a comparison of costs was achieved. Costs for equipment and salaries varied greatly. Averaging seemed the best technique to balance the high and low estimates. All costs relate to equipment delivered to U.S. facilities. Salaries fluctuate widely not only among nations, but within the United States as well. Therefore, rather than quote a salary, the variables (A,B,C...) have been used for the purpose of establishing a standard formula. Costs quoted are initial "set-up charges" only. Subsequent operating years will not include equipment charges but may include maintenance costs.

Certain costs were not considered, such as wages for supervisory personnel, overhead costs (building rental, electricity, standard office supplies, etc.), secretarial assistance and shipping costs. These were assumed to remain constant for each of the three methods.

Cost Estimates

I. HANDCOPIED BRAILLE

A. Personnel

1. Reader/Proofreader: The initial step in transcribing a print book into braille is the reading of that book onto a cassette so that it can be accessed and transcribed to braille by a blind inputter. Salary varies depending on skill.

Average Yearly Salary: $A

Suggested Minimum Number of Personnel: 3

2. Inputter: Inputters type the recorded material into braille format on a Perkins Brailler. Salaries vary widely.

   Average Yearly Salary: $B

   Suggested Minimum Number of Personnel: 5

3. Inputter (Alternate Method): An alternate method employs a sighted inputter who would be able to transcribe directly from print to braille.

   Average Yearly Salary: $C

   Suggested Minimum Number of Personnel: 5

4. Proofreaders: Proofreaders are highly qualified braillists who are able to detect errors in original braille transcriptions. Each proofreader should be proficient in two or more languages.

   Average Yearly Salary: $D

   Suggested Minimum Number of Personnel: 2

5. Duplicating Machine and Binding Machine Operators: These technicians should have the ability to operate both the thermoform and binding machines.

   Average Yearly Salary: $E

   Suggested Minimum Number of Personnel: 2

B. Equipment

1. Perkins Brailler:

   Present Cost: $180

   Suggested Minimum Number: 5

2. Cassette Recorders: For recording print book so it may be transcribed by braillists.

   Average Cost: $500

   Suggested Minimum Number: 3

3. Thermoform Machines:

   Average Cost: $800

   Suggested Minimum Number: 3

4. Binding Machines: A binding machine provides the ability to staple, stitch or glue the braille pages into single volumes. The velobind System costs: $2500.

Suggested Minimum Number: 2

C. Material

1. Master Paper:

Cost: $5/500 sheets ($.01/sheet)

2. Duplicating Paper:

Cost: $.07/sheet

3. Cassette Tapes:

Average Cost: $.50/tape

4. Binding Covers:

Cost: $2.00/vol.

II. PRESS BRAILLE

A. Personnel

1. Reader/Proofreader: Same description and duties as described in (I.A.1.).

Average Salary: $A

Suggested Minimum Number of Personnel: 3

2. Inputter: Same duties as described in (I.A.2.) performed on stereotype machine.

Average Salary: $B

Suggested Minimum Number of Personnel: 5

3. Inputter (Alternate Method): Same duties and description as in (I.A.3.).

Average Salary: $C

Suggested Minimum Number of Personnel: 5

4. Proofreader: Same duties and description as in (I.A.4.).

Average Salary: $D

Suggested Minimum Number of Personnel: 3

5. Duplicating Machine Operator/Binding Machine Operator: Same duties as described in (I.A.5.) performed on different type of duplicating press.

Average Salary: $E

Suggested Minimum Number of Personnel: 2

B. Equipment

1. Stereotype Machine: A number of machines are manufactured; however, there is a long wait in obtaining any of them, since each one is handmade. The Marburg stereotype machine is unavailable in the U.S. at this time, but may be available in certain overseas areas. Its cost is estimated at $20,000. Clovernook Press has a rebuilt machine which costs approximately $8000.[2/]

Suggested Minimum Number: 1

2. Duplicating Press: This is another expensive investment, estimated to cost $40,000 new and $10,000 reconditioned.

Estimated Minimum Cost: $10,000

Suggested Minimum Number: 1

3. Binding Machine: This is a Velobind machine as discussed in (I.B.4.).

Estimated Cost: $2500

Suggested Minimum Number: 2

2/ The Press Braille method of production may be incorporated using a wide variety of input and output devices from the Marburg Embosser, a relatively simple, electrical keypunch machine to the more complex SAGEM system and LED series devices, and even an optical character reading device. While these later methods have been considered, they were rejected because of their more complex nature and impracticality for a fledgling system without access to sophisticated repair facilities.

C. Material

1. Zinc Plates for Stereotype Press:

Average Cost: $.50 each

2. Braille Duplicating Paper:

Average Cost: $.07/sheet

3. Cassette Tapes:

Average Cost: $.50/tape

4. Binding Covers:

Cost: $2.00/vol.

III. PAPERLESS BRAILLE

(All cost estimates are based on input being accomplished directly to digicassette, rather than through compositor tapes.)

A. Personnel

1. Peader/Proofreader: Same description and duties as described in (I.A.1.).

Average Salary: $A

Suggested Minimum Number of Personnel: 3

2. Inputter: Same as description and duties as outlined in (I.A.2.) performed on digicassette.

Average Salary: $B

Suggested Minimum Number of Personnel: 5

3. Inputter (Alternate Method): Same duties and description as in (I.A.3.)

Average Salary: $C

Suggested Minimum Number of Personnel: 5

4. Proofreaders: Same duties and description as in (I.A.4.).

Average Salary: $D

Suggested Minimum Number of Personnel: 3

5. Cassette Duplicator Operator: Individual responsible for duplicating braille cassette tapes.

Average Salary: $E

Suggested Minimum Number of Personnel: 2

B. Equipment

1. Electronic Paperless Braille Machines: Various paperless braille units are available including ELINFA, Braillex, and TSI.

The ELINFA Recorder/Playback machine costs $2900.

The Braillex is a larger machine costing approximately $5000.

The TSI machine is still in prototype form and has not yet been mass-produced. Cost estimates are $2500.

Based primarily on cost and availability we will consider the ELINFA machine for accounting purposes:

Average Cost: $2900

Suggested Minimum Number: 5

2. Cassette Duplicating Machine:

Estimated Cost: $5000

Suggested Minimum Number: 1

C. Material

1. Cassette Tapes (for original recordings):

Cost: $0.50/tape

2. Digicassette Tapes:

Cost: $4.00/tape

3. Digicassette Playback Machine:

Estimated Cost: $2100

Suggested Minimum Number: 1000

Summary:

These costs are summarized in the following three tables:

Table #1 summarizes the personnel required for each method,

Table #1A summarizes personnel for the alternate method which employs the sighted inputter,

Table #2 summarizes the equipment requirements, and

Table #3 summarizes material requirements.

TABLE #1

PERSONNEL REQUIRED

	READER/PROOFREADER	BRAILLE INPUTTER	BRAILLE PROOFREADER	MACHINE OPERATOR
HANDCOPIED BRAILLE	X	X	X	X
PRESS BRAILLE	X	X	X	X
ELECTRONIC PAPERLESS BRAILLE	X	X	X	X

TABLE #1A
PERSONNEL REQUIRED (ALTERNATE METHOD)

	INPUTTER (ALTERNATE)	BRAILLE PROOFREADER	MACHINE OPERATOR
HANDCOPIED BRAILLE	X	X	X
PRESS BRAILLE	X	X	X
ELECTRONIC PAPERLESS BRAILLE	X	X	X

TABLE #2

EQUIPMENT REQUIRED

	CASSETTE RECORDERS	PERKINS BRAILLER	STENOTYPE MACHINE	THERMOFORM MACHINE	BINDING MACHINE	DUPLICATING PRESS	PAPERLESS BRAILLER	CASSETTE DUPLICATOR
HANDCOPIED BRAILLE	X	X		X	X			
INKS BRAILLE	X		X		X	X		
ELECTRONIC PAPERLESS BRAILLE	X						X	X

TABLE #3
MATERIAL REQUIRED

	CASSETTE TAPES	BRAILLE MASTERS	DUPLICATING PAPER	ZINC PLATES	BINDING COVERS	DISKCASSETTE TAPES	USED CASSETTES	
HANDCOPIED BRAILLE	X	X	X		X			
PRESS BRAILLE	X		X	X	X			
ELECTRONIC PAPERLESS BRAILLE	X					X	X	

Comprehensive Cost Analysis

In establishing a hypothetical braille facility, employ 3 readers/proofreaders, 5 inputters, 3 braille proofreaders, and 2 machine operators. The alternate method would require 5 inputters, 3 braille proofreaders, and 2 machine operators.

Equipment varies with method. Material varies depending on output of the facility.

Assume twenty-five titles are produced each year in each of five languages, with each title being duplicated in twenty-five copies. Tables 4, 4A, 5, and 6 indicate costs for each major consideration: personnel, equipment, and material. Costs do not include salaries for supervisory personnel, overhead costs, secretarial assistance, and shipping costs.

Cost Summary

I. Handcopied Braille

Personnel Costs:	3A+5B+3D+2E
Equipment Costs:	$9800
*Material Costs:	$113,250
Total:	$123,050+(3A+5B+3D+2E)

IA. Handcopied Braille (Alternate Method)

Personnel Costs:	5C+3D+2E
Equipment Costs:	$9800
*Material Costs:	$113,250
Total:	$123,050+(5C+3D+2E)

II. Press Braille

Personnel Costs:	3A+5B+3D+2E
Equipment Costs:	$24,500
*Material Costs:	$81,500
Total:	$106,000+(3A+5B+3D+2E)

IIA. Press Braille (Alternate Method)

Personnel Costs:	5C+3D+2E
Equipment Costs:	$24,500
*Material Costs:	$81,500
Total:	$106,000+(5C+3D+2E)

III. Digicassette Braille

Personnel Costs:	3A+5B+3D+2E
Equipment Costs:	$21,000
*Material Costs:	$2,150,250
Total:	$2,171,250+(3A+5B+3D+2E)

IIIA. Digicassette Braille (Alternate Method)

Personnel Costs:	5C+3D+2E
Equipment Costs:	$21,000
*Material Costs:	$2,150,250
Total:	$2,171,050+(5C+3D+2E)

*Based on twenty-five titles produced in five languages and twenty-five copies each year, per title.

TABLE #4

PERSONNEL REQUIRED

	READER/PROOFREADER	BRAILLE INPUTTER	BRAILLE PROOFREADER	MACHINE OPERATOR
	[YEARLY SALARY =$A]	[YEARLY SALARY= $B]	[YEARLY SALARY= $D]	[YEARLY SALARY= $E]
HANDCOPIED BRAILLE	3 Persons Salary= $3A	5 Persons Salary= $5B	3 Persons Salary= $3D	2 Persons Salary= $2E
PRESS BRAILLE	3 Persons Salary= $3A	5 Persons Salary= $5B	3 Persons Salary= $3D	2 Persons Salary= $2E
ELECTRONIC PAPERLESS BRAILLE	3 Persons Salary= $3A	5 Persons Salary= $5B	3 Persons Salary= $3D	2 Persons Salary= $2E

TABLE #4A
PERSONNEL REQUIRED (ALTERNATE METHOD)

	INPUTTER (ALTERNATE)	BRAILLE PROOFREADER	MACHINE OPERATOR
	[YEARLY SALARY= $C]	[YEARLY SALARY= $D]	[YEARLY SALARY= $E]
HANDCOPIED BRAILLE	5 Persons Salary= $5C	3 Persons Salary= $3D	2 Persons Salary= $2E
PRESS BRAILLE	5 Persons Salary= $5C	3 Persons Salary= $3D	2 Persons Salary= $2E
ELECTRONIC PAPERLESS BRAILLE	5 Persons Salary= $5C	3 Persons Salary= $3D	2 Persons Salary= $2E

TABLE #5

EQUIPMENT REQUIRED

	CASSETTE RECORDERS	PERKINS BRAILLER	STEREOTYPE MACHINE	THERMOFORM MACHINE	BINDING MACHINE	DUPLICATING PRESS	PAPERLESS BRAILLER	CASSETTE DUPLICATOR
	[@ $500]	[@ $180]	[@ $8000 Recondition]	[@ $800]	[@ $2500]	[@ $10,000 Reconditioned]	[@ $2900]	[@ $5000]
HANDCOPIED BRAILLE	3 Mach. ($1500)	5 Mach. ($900)		3 Mach. ($2400)	2 Mach. ($5000)			
PRESS BRAILLE	3 Mach. ($1500)		1 Mach. ($8000)		2 Mach. ($5000)	1 Mach. ($10,000)		
ELECTRONIC PAPERLESS BRAILLE	3 Mach. ($1500)						5 Mach. ($14,500)	1 Mach. ($5000)

TABLE #6
MATERIAL REQUIRED

	CASSETTE TAPES	BRAILLE MASTER	DUPLICATING PAPER	ZINC PLATES	BINDING COVERS	DIGICASSETTE TAPES	USER CASSETTE MACHINES	
	(@ $.50)	($.01/pg)	($.07/pg)	($.50/plt)	(@$2.00)	(@ $4.00)	(@ $2100)	
HANDCOPIED BRAILLE	500 tapes ($250)	50,000pgs ($500)	1.25 mil. pages ($87,500)		12,500vol ($25,000)			
PRESS BRAILLE	500 tapes ($250)		(Front/Bk Dupl.) 625,000pgs ($43,750)	50,000plt ($25,000)	6,250vol ($12,500)			
ELECTRONIC PAPERLESS BRAILLE	500 tapes ($250)					12,500 cass ($50,000)	1,000 mach. ($2,100,000)	

Observations

1. This cost analysis indicates that press braille is the cheapest production method. However, these figures are predicated on the assumption that both the stereotype machine and duplicating press are bought reconditioned and thus are far cheaper than new machines.

2. A major cost consideration which had great impact was material cost, especially the cost of duplicating paper. The ability to produce braille on two sides with a press versus one-sided production on a thermoform copier, reduced costs considerably. ($43,000 for press versus $87,500 for handcopied.)

3. Digicassette braille, while a more compact system, is expensive when considering initial costs for each reader to own or borrow his own machine. The 1000 machines considered pushed the cost up significantly. Realistically, however, this would be a minimum number for a continent-wide program.

4. It is hard to imagine any program of this magnitude costing less than a million dollars. The hidden costs of additional personnel, and overhead expenses were not addressed because of the difficulty in defining specific goals outlined. Indeed, such a program is ultimately molded to specific dollar constraints rather than money being allocated to fit desires.

5. Perhaps the most significant thing we can determine from the limited information and analysis conducted herein is to say that from a practical standpoint, a handcopied system would be easiest to establish but less efficient and not necessarily less expensive than a press braille facility. The press braille facility is most efficient in terms of mass-production capability and can be of reasonable cost, if second-hand machines are purchased.

APPENDIX I

GEOGRAPHIC AND ECONOMIC CONDITIONS

COUNTRY	NO	ISLAND	AR	POPULAT	GNP
* ALGERIA	2	NO	919800	17000000	$770.00
* ANGOLA	21	NO	481000	5670000	$680.00
* BENIN -DAHOMEY-	39	NO	44000	3200000	$130.00
* BOTSWANA	24	NO	222000	630000	$330.00
* BURUNDI	26	NO	10700	3900000	$120.00
* CAMEROON	16	NO	183000	7500000	$290.00
* CAPE VERDE ISLANDS	48	YES	1500	360000	$470.00
* CENTRAL AFRICAN EMPIRE	20	NO	241000	1640000	$230.00
* CHAD	34	NO	496000	3870000	$120.00
* COMOROS	49	YES	800	344000	$260.00
* CONGO	18	NO	132000	1320000	$520.00
* DJIBOUTI	41	NO	8900	125000	$1,720.00
* EGYPT	23	NO	386000	39000000	$280.00
* EQUATORIAL GUINEA	1	NO	10800	290000	$330.00
* ETHIOPIA	29	NO	395000	29400000	$100.00
* GABON	17	NO	103400	950000	$2,240.00
* GAMBIA	42	NO	4100	493000	$180.00
* GHANA	12	NO	92000	9600000	$460.00
* GUINEA	7	NO	95000	5140000	$150.00
* GUINEA-BISSAU	43	NO	14000	800000	$390.00
* IVORY COAST	10	NO	124000	6700000	$500.00
* KENYA	28	NO	225000	13800000	$240.00
* LESOTHO	44	NO	11700	1150000	$170.00
* LIBERIA	9	NO	43000	1500000	$410.00
* LIBYA	45	NO	679000	2630000	$3,080.00
* MADAGASCAR	46	YES	229000	8000000	$200.00
* MALAWI	38	NO	36000	5310000	$140.00
* MALI	5	NO	464000	6300000	$100.00
* MAURITANIA	4	NO	398000	1400000	$310.00
* MAURITIUS	52	YES	720	881000	$580.00
* MOROCCO	3	NO	172000	17800000	$470.00
* MOZAMBIQUE	37	NO	303000	10000000	$310.00
* NAMIBIA -S.W.AFRICA-	22	NO	318000	909000	$800.00
* NIGER	14	NO	458200	4240000	$130.00
* NIGERIA	15	NO	357000	73000000	$210.00
* RHODESIA -ZIMBABWE-	25	NO	151000	6500000	$550.00
* RWANDA	35	NO	10200	3500000	$110.00
* SAO TOME AND PRINCIPE	51	YES	372	76000	$570.00
* SENEGAL	6	NO	76000	5010000	$270.00
* SEYCHELLES	50	YES	156	59000	$520.00
* SIERRA LEONE	8	NO	28000	3000000	$200.00
* SOMALIA	30	NO	246000	3240000	$110.00
* SOUTH AFRICA	23	NO	456000	24000000	$1,340.00

COUNTRY	NO	ISLAND	AR	POPULAT	GNP
SUDAN	32	NO	968000	17000000	$290.00
SWAZILAND	47	NO	6700	520000	$570.00
TANZANIA	27	NO	365000	15000000	$180.00
TOGO	13	NO	21600	2200000	$260.00
TUNISIA	40	NO	63000	5770000	$760.00
UGANDA	31	NO	91000	11200000	$240.00
UPPER VOLTA	11	NO	105800	6100000	$110.00
ZAIRE	19	NO	895000	25600000	$140.00
ZAMBIA	26	NO	291000	5140000	$340.00

APPENDIX II

EDUCATION AND LIBRARY STATISTICS

COUNTRY	POPULAT	LITS	LIBS	ORG
***				
* ALGERIA	17000000	.26	19	ORGANISATION NATIONALE DES AVEUGLES ALGERIENS
* ANGOLA	5670000	.12	5	
* BENIN -DAHOMEY-	3200000	.20	1	
* BOTSWANA	630000	.20		
* BURUNDI	3900000	.10	4	
* CAMEROON	7500000	.12	9	BULU CENTER FOR THE BLIND
*				MINISTRY OF SOCIAL AFFAIRS
* CAPE VERDE ISLANDS	360000			
* CENTRAL AFRICAN EMPIRE	1640000	.12	1	
* CHAD	3870000	.14	4	
* COMOROS	344000			
* CONGO	1320000	.20	2	
* DJIBOUTI	125000			
* EGYPT	39000000	.40	67	DEMONSTRATION CENTRE FOR THE REHAB. OF THE BLIND
*				DIRECTORATE OF REHABILITATION FOR THE HANDICAPPED
* EQUATORIAL GUINEA	290000	.20		
* ETHIOPIA	29400000	.07	63	HAILE SELASSIE I FOUNDATION
* GABON	950000	.12	1	
* GAMBIA	493000	.10	1	GAMBIA SOCIETY FOR THE BLIND
*				YORO BERI KUNDA TRAINING CENTER
* GHANA	9600000	.25	26	GHANA SOCIETY FOR THE BLIND
*				SCHOOL FOR THE BLIND
* GUINEA	5140000	.10	3	
* GUINEA-BISSAU	800000	.35	3	
* IVORY COAST	6700000	.20	8	ASOCIATION POUR LA PROMOTION DES AVEUGLES
* KENYA	13800000	.25	23	KENYA SOCIETY FOR THE BLIND
*				ST LUCYS SCHOOL FOR THE BLIND
* LESOTHO	1180000	.50	2	SAVE THE CHILDREN FUND
* LIBERIA	1500000	.10	4	
* LIBYA	2630000	.30	14	AL NOUR ASSOC. FOR REHAB OF THE BLIND
*				NATIONAL SOCIETY FOR CARE AND GUIDANCE OF THE BLIN
				D
* MADAGASCAR	8000000	.39	16	
* MALAWI	5310000	.22	11	LULWE SCHOOL FOR THE BLIND
*				SOCIETY FOR THE BLIND IN MALAWI
* MALI	6300000	.10	8	MALI ASSOC FOR THE SOCIAL ADVANCEMENT O/T BLIND
* MAURITANIA	1480000	.05	4	
* MAURITIUS	881000	.62	13	WELFARE OF THE BLIND AND PREVENTION OF BLINDNESS S
				OCIETY
* MOROCCO	17800000	.20	80	
* MOZAMBIQUE	10000000	.07	20	
* NAMIBIA -S.W.AFRICA-	909000	.35	7	
* NIGER	4210000	.05	4	

COUNTRY	POPULAT	LITS	LIBS	ORG
NIGERIA	73000000	.25	49	BIDA BLIND CENTER
				FEDERAL MINISTRY OF SOCIAL DEVELOPMENT
				NIGERIAN NATIONAL ADVISORY COUNCIL FOR THE BLIND
RHODESIA -ZIMBABWE-	6500000	.27	28	COUNCIL FOR THE BLIND
				JAIROS JIRI ASSOC. OF THE DISABLED AND BLIND
				RHODESIAN SOCTY FOR THE BLIND AND PHYS HANDICAPPED
RWANDA	5500000	.23	5	
SAO TOME AND PRINCIPE	76000			
SENEGAL	5090000	.10	31	UNION NATL DES AVEUGLES DU SENEGAL
SEYCHELLES	59000			
SIERRA LEONE	3000000	.15		SIERRA LEONE BLIND WELFARE SOCIETY
				SIR MILTON MARGAI SCHOOL FOR THE BLIND
SOMALIA	3200000	.05	7	
SOUTH AFRICA	26000000	.35	157	ALLONE SCHOOL FOR THE BLIND
				BEACON CLUB FOR THE BLIND
				BOSELE SCHOOL FOR BANTU BLIND
				CAPETOWN CIVILIAN BLIND SCIETY
				CIVILIAN BLIND SOCIETY OF OFS
				COLOURED AND INDIAN BLIND WELFARE ASSOCIATION
				EAST CONDON SOCIETY FOR CIVILIAN BLIND
				EFATA SCHOOL FOR BLIND AND DEAF BANTU CHILDREN
				GOLDFIELDS CIVILIAN BLIND SOCIETY
				GRAHAMSTOWN CIVILIAN BLIND SOCIETY
				JOHANNESBURG SOCIETY TO HELP CIVILIAN BLIND
				KIMBERLEY AND N.CAPE CIVILIAN BLIND SOCIETY
				KING WILLIAMS TOWN SOCIETY FOR CIVILIAN BLIND
				LEAGUE OF FRIENDS OF THE BLIND
				LIGHTHOUSE CLUB FOR THE BLIND
				NATAL BANTU BLIND SOCIETY
				NATAL EUROPEAN AND COLOURED CIVILIAN BLIND ASSOC.
				NATAL INDIAN BLIND AND DEAF SOCIETY
				NEW HORIZON SCHOOL FOR THE BLIND
				PORT ELIZABETH SOCIETY FOR THE BLIND
				PRETORIA SOCIETY TO HELP CIVILIAN BLIND
				PRINSHOF SCHOOL FOR THE PARTIALLY SIGHTED..
				SA BLIND WORKERS ORGANISATION AND BRAILLE SERVICES
				SCHOOL FOR THE BLIND
				SILOE SCHOOL FOR BLIND BANTU CHILDREN
				SOUTH AFRICAN LIBRARY FOR THE BLIND
				SOUTH AFRICAN NATIONAL COUNCIL FOR THE BLIND
				TAPE AIDS FOR THE BLIND
				TUL BANTU BLIND SOCIETY
				VULEKA SCHOOL FOR BLIND AND DEAF ZULU CHILDREN

AFRICAN EDUCATIONAL AND LIBRARY STATISTICS

COUNTRY	POPULAT	LITS	LIBS	ORG
				WORKSHOP AND HOMES FOR THE BLIND
				WORKSHOP AND HOMES FOR THE BLIND
SUDAN	17000000	.19	26	NATIONAL COMMITTEE FOR CARE OF THE BLIND
SWAZILAND	528000	.36	4	ST JOSEPHS RESEARCH CENTER
				SWAZILAND SOCIETY FOR THE HANDICAPPED
TANZANIA	15000000	.18	23	MANOLEO TRAINING CENTER FOR THE BLIND
				TANZANIA SOCIETY FOR THE BLIND
				ZANZIBAR VOLUNTARY WELFARE SOCIETY
TOGO	2200000	.10	6	
TUNISIA	5770000	.32	18	UNION NATIONALE DES AVEUGLES DE TUNISIE
UGANDA	11200000	.20	18	UGANDA FOUNDATION FOR THE BLIND
UPPER VOLTA	6100000	.07	3	
ZAIRE	25600000	.13	26	
ZAMBIA	5140000	.40	17	ZAMBIAN COUNCIL FOR THE BLIND

APPENDIX III

POLITICAL CONDITIONS

COUNTRY	NO	MOTHER	INDEP	CONFLICT	INTERNAL
***					
* ALGERIA	2	FRANCE	07/03/1962		
* ANGOLA	21	PORTUGAL	11/11/1975	YES	
* BENIN -DAHOMEY-	39	FRANCE	08/01/1960		YES
* BOTSWANA	24	UNITED KINGDOM	09/30/1966		
* BURUNDI	36	BELGIUM	07/01/1962		YES
* CAMEROON	16	FRANCE	01/01/1960		
* CAPE VERDE ISLANDS	48	PORTUGAL	07/05/1975		
* CENTRAL AFRICAN EMPIRE	20	FRANCE	08/13/1960		YES
* CHAD	34	FRANCE	08/11/1960	YES	YES
* COMOROS	49	FRANCE	07/06/1975		YES
* CONGO	18	FRANCE	08/15/1960		YES
* DJIBOUTI	41	FRANCE	06/27/1977		
* EGYPT	33	UNITED KINGDOM	01/01/1922		
* EQUATORIAL GUINEA	1	SPAIN	10/12/1968		YES
* ETHIOPIA	29		11/14/1962	YES	YES
* GABON	17	FRANCE	08/17/1960		
* GAMBIA	42	UNITED KINGDOM	02/18/1965		
* GHANA	12	UNITED KINGDOM	03/06/1957		
* GUINEA	7	FRANCE	10/02/1958		
* GUINEA-BISSAU	43	PORTUGAL	09/10/1974		YES
* IVORY COAST	10	FRANCE	08/07/1960		
* KENYA	28	UNITED KINGDOM	12/12/1963		
* LESOTHO	44	UNITED KINGDOM	10/04/1966		YES
* LIBERIA	9		07/26/1847		
* LIBYA	45	ITALY	12/24/1951		
* MADAGASCAR	46	FRANCE	06/26/1960		YES
* MALAWI	38	UNITED KINGDOM	07/06/1964		
* MALI	5	FRANCE	06/20/1960		
* MAURITANIA	4	FRANCE	11/28/1960	YES	YES
* MAURITIUS	52		03/12/1968		YES
* MOROCCO	3	FRANCE	03/02/1956	YES	
* MOZAMBIQUE	37	PORTUGAL	06/25/1975	YES	
* NAMIBIA -S.W.AFRICA-	22	UNDER SA ADMIN	12/03/1978	YES	YES
* NIGER	14	FRANCE	08/03/1960		
* NIGERIA	15	UNITED KINGDOM	10/01/1960		YES
* RHODESIA -ZIMBABWE-	25	UNITED KINGDOM	12/31/1978	YES	YES
* RWANDA	35	BELGIUM	07/01/1962		YES
* SAO TOME AND PRINCIPE	51	PORTUGAL	07/12/1975		
* SENEGAL	6	FRANCE	06/20/1960		
* SEYCHELLES	50		06/29/1976		
* SIERRA LEONE	8	UNITED KINGDOM	04/27/1961		YES
* SOMALIA	30	UNITED KINGDOM	07/01/1960	YES	YES
* SOUTH AFRICA	23	UNITED KINGDOM			YES

COUNTRY	NO	MOTHER	INDEP	CONFLICT	INTERNAL
***					
* SUDAN	32	UNITED KINGDOM	01/01/1956		
* SWAZILAND	47	UNITED KINGDOM	09/06/1968		
* TANZANIA	27	UNITED KINGDOM	12/09/1961	YES	
* TOGO	13	FRANCE	04/27/1960		YES
* TUNISIA	40	FRANCE	03/20/1956		YES
* UGANDA	31	UNITED KINGDOM	10/09/1962	YES	YES
* UPPER VOLTA	11	FRANCE	08/05/1960		YES
* ZAIRE	19	BELGIUM	06/30/1960	YES	
* ZAMBIA	26	UNITED KINGDOM	10/24/1964	YES	

APPENDIX IV

SPOKEN LANGUAGES

ELEMENT- LANGUAGE

FREQUENCY	VALUE
1	AFAR
4	AFRICAANS
2	AMHARIC
13	ARABIC
1	BAMBARA
4	BANTU
2	BERBER
2	CHICHEUA
1	CHINESE
2	CREOLE
2	CRIOULO
1	DANGME
1	DJERMA
28	ENGLISH
1	EWE
1	FANG
32	FRENCH
1	GA
1	GALLA
1	GEEZ
16	GERMAN
1	HASSANIYA
2	HAUSA
1	HINDI
1	IBO
3	ITALIAN
1	KINYARUANDA
1	KIRUNDI
4	KISUAHILI
1	KRIO
2	LUGANDA
1	MALAGASY
1	MAMA
1	NDEBELE
1	NDONGA
1	NIGER-CONGO
1	NYANJA
5	PORTUGUESE
1	RONGA
1	SANGHO
2	SESOTHO
1	SETSWANA
1	SHANGANE
1	SHONA
2	SISWATI
2	SOMALI
6	SPANISH
3	SWAHILI
1	TIGRE
1	TSHILUBA
1	TWI
1	URDU
1	YORUBA

53 UNIQUE VALUES

170 OCCURRENCES

APPENDIX V

PUBLISHED LANGUAGES

COUNTRY	LANGUAGE	PUBLIN	PUBLOUT
ALGERIA	ARABIC	YES	NO
	BERBER	YES	NO
	ENGLISH	YES	NO
	FRENCH	YES	A DE BOECK
	GERMAN	YES	NO
	SPANISH	YES	NO
ANGOLA	BANTU	YES	NO
	FRENCH	YES	NO
	GERMAN	YES	NO
	PORTUGUESE	YES	NO
	SPANISH	YES	NO
BENIN -DAHOMEY-	FRENCH	YES	NO
BOTSWANA	ENGLISH	YES	NO
	SETSWANA	YES	NO
BURUNDI	FRENCH	YES	NO
	KIRUNDI	YES	NO
	KISWAHILI	YES	NO
CAMEROON	ENGLISH	YES	EVANS BROS
	FRENCH	YES	EDITIONS MAAMAN LIBRARIE PROTESTANTE
	GERMAN	YES	NO
CAPE VERDE ISLANDS	CRIOULO	YES	NO
	PORTUGUESE	YES	NO
	SPANISH	YES	NO
CENTRAL AFRICAN EMPIRE	FRENCH	YES	NO
	SANGHO	YES	NO
CHAD	ARABIC	YES	NO
	ENGLISH	YES	NO
	FRENCH	YES	NO
	GERMAN	YES	NO
COMOROS	ARABIC	YES	NO
	FRENCH	YES	NO
	KISWAHILI	YES	NO
CONGO	FRENCH	YES	NO
DJIBOUTI	AFAR	YES	NO
	ARABIC	YES	NO
	FRENCH	YES	NO
	SOMALI	YES	NO
EGYPT	ARABIC	YES	NO
	ENGLISH	YES	AMERICAN UNIV. PRESS
	FRENCH	YES	NO
	GERMAN	YES	NO
EQUATORIAL GUINEA	ENGLISH	YES	NO

COUNTRY	LANGUAGE	PUBLIN	PUBLOUT
	SPANISH	YES	NO
ETHIOPIA	AMHARIC	YES	NO
	ENGLISH	YES	OXFORD
	FRENCH	YES	NO
	GALLA	YES	NO
	GEEZ	YES	NO
	GERMAN	YES	NO
	ITALIAN	YES	NO
	TIGRE	YES	NO
GABON	BANTU	YES	NO
	FANG	YES	NO
	FRENCH	YES	NO
	GERMAN	YES	NO
GAMBIA	ENGLISH	YES	NO
GHANA	DAHOME	YES	NO
	EWE	YES	NO
	FRENCH	YES	NO
	GA	YES	NO
	TWI	YES	NO
GUINEA	FRENCH	YES	NO
GUINEA-BISSAU	CREOULO	YES	NO
	PORTUGUESE	YES	NO
IVORY COAST	ENGLISH		
	FRENCH	YES	NO
KENYA	ARABIC		
	ENGLISH		EVANS BROS LONGMANS OXFORD UNIV. OF LONDON
	LUGANDA		
	SESOTHO		
	SWAHILI		
LESOTHO	ENGLISH	YES	NO
	SESOTHO	YES	NO
LIBERIA	ENGLISH	YES	NO
	FRENCH	YES	NO
	GERMAN	YES	NO
	ITALIAN	YES	NO
	SPANISH	YES	NO
LIBYA	ARABIC	YES	NO
	GERMAN	YES	NO
MADAGASCAR	CHICHEWA	YES	NO
	ENGLISH	YES	NO

COUNTRY	LANGUAGE	PUBLIC	PUBLISH
***			
*	FRENCH	YES	NO
*	MALAGASY	YES	NO
* MALAWI	BANTU	YES	NO
*	CHICHEWA	YES	NO
*	ENGLISH	YES	LONGMANS
*	FRENCH	YES	NO
* MALI	BAMBARA	YES	NO
*	FRENCH	YES	NO
* MAURITANIA	ARABIC	YES	NO
*	FRENCH	YES	NO
*	HASSANIYA	YES	NO
*	WOLOF-SONGO		
* MAURITIUS	CHINESE	YES	NO
*	CREOLE	YES	NO
*	ENGLISH	YES	NO
*	FRENCH	YES	NO
*	HINDI	YES	NO
*	URDU	YES	NO
* MOROCCO	ARABIC	YES	NO
*	BERBER	YES	NO
*	FRENCH	YES	NO
*	GERMAN	YES	NO
*	SPANISH	YES	NO
* MOZAMBIQUE	AFRIKAANS	YES	NO
*	ENGLISH	YES	NO
*	FRENCH	YES	NO
*	GERMAN	YES	NO
*	PORTUGUESE	YES	NO
*	SONGA	YES	NO
*	SHANGANE	YES	NO
* NAMIBIA -S.W.AFRICA-	AFRIKAANS	YES	NO
*	ENGLISH	YES	NO
*	GERMAN	YES	NO
*	HERO	YES	NO
*	KWANGA	YES	NO
* NIGER	DJERMA	YES	NO
*	FRENCH	YES	NO
*	HAUSA	YES	NO
* NIGERIA	AMHARIC	YES	NO
*	ARABIC	YES	NO
*	ENGLISH		CAMBRIDGE
*			EVANS BROS
*			LONGMANS

COUNTRY	LANGUAGE	PUBLIN	PUBLOUT
			MACMILLAN
			OXFORD
			THOMAS NELSON
	HAUSA	YES	NO
	IBO	YES	NO
	YORUBA	YES	NO
RHODESIA -ZIMBABWE-	ENGLISH	YES	LONGMAN
	FRENCH	YES	NO
	GERMAN	YES	HEINEMANN
	NDEBELE	YES	NO
	NYANJA	YES	NO
	SHONA	YES	NO
RWANDA	FRENCH	YES	NO
	GERMAN	YES	NO
	KINYARWANDA	YES	NO
	KISWAHILI	YES	NO
SAO TOME AND PRINCIPE	PORTUGUESE	YES	NO
SENEGAL	FRENCH	YES	NO
SEYCHELLES	CREOLE	YES	NO
	ENGLISH	YES	NO
	FRENCH	YES	NO
SIERRA LEONE	ENGLISH	YES	EVANS BROS
	KRIO	YES	NO
SOMALIA	ARABIC	YES	NO
	ENGLISH	YES	NO
	ITALIAN	YES	NO
	SOMALI	YES	NO
SOUTH AFRICA	AFRICAANS	YES	NO
	BANTU	YES	NO
	ENGLISH		EVANS BROS
			LONGMAN
			OXFORD
	GERMAN	YES	NO
	SISWATI	YES	NO
	SWAHILI	YES	NO
SUDAN	ARABIC	YES	NO
SWAZILAND	AFRICAANS	YES	NO
	ENGLISH	YES	NO
	SISWATI	YES	NO
TANZANIA	ENGLISH		LONGMANS
			OXFORD
	SWAHILI	YES	NO
TOGO	FRENCH	YES	NO

COUNTRY	LANGUAGE	PUBLIN	PUBLOUT
* TUNISIA	ARABIC	YES	NO
*	FRENCH	YES	NO
* UGANDA	ENGLISH	YES	LONGMANS
*			MACMILLANS
*	KISWAHILI	YES	NO
*	LUGANDA	YES	NO
* UPPER VOLTA	FRENCH	YES	NO
* ZAIRE	ENGLISH	YES	NO
*	GERMAN	YES	NO
*	TSHILUBA	YES	NO
* ZAMBIA	ENGLISH	YES	LONGMANS
*			OXFORD

APPENDIX VI

POPULATION TABULATION

BLIND POPULATION (MOST POPULOUS TO LEAST POPULOUS)

COUNTRY	POPULAT	BPOP
NIGERIA	73,000,000	730,000
EGYPT	39,000,000	390,000
ETHIOPIA	29,400,000	294,000
ZAIRE	25,600,000	256,000
MOROCCO	17,800,000	178,000
SUDAN	17,000,000	170,000
ALGERIA	17,000,000	170,000
TANZANIA	15,000,000	150,000
KENYA	13,800,000	138,000
UGANDA	11,200,000	112,000
MOZAMBIQUE	10,000,000	100,000
GHANA	9,600,000	96,000
MADAGASCAR	8,000,000	80,000
CAMEROON	7,500,000	75,000
IVORY COAST	6,700,000	67,000
RHODESIA - ZIMBABWE	6,500,000	65,000
MALI	6,300,000	63,000
UPPER VOLTA	6,100,000	61,000
ANGOLA	5,670,000	56,700
RWANDA	5,500,000	55,000
MALAWI	5,310,000	53,100
GUINEA	5,140,000	51,400
SENEGAL	5,090,000	50,900
NIGER	4,240,000	42,400
BURUNDI	3,900,000	39,000
CHAD	3,870,000	38,700
BENIN - DAHOMEY	3,200,000	32,000
SOMALIA	3,200,000	32,000
SIERRA LEONE	3,000,000	30,000
LIBYA	2,630,000	26,300
SOUTH AFRICA	26,000,000	22,000
TOGO	2,200,000	22,000
TUNISIA	5,770,000	18,000
CENTRAL AFRICAN EMPIRE	1,640,000	16,400
LIBERIA	1,500,000	15,000
MAURITANIA	1,480,000	14,800
CONGO	1,320,000	13,200
LESOTHO	1,180,000	11,800
ZAMBIA	5,140,000	10,000
GABON	950,000	9,500
NAMIBIA -S.W. AFRICA	909,000	9,090
MAURITIUS	881,000	8,810
GUINEA-BISSAU	800,000	8,000
BOTSWANA	630,000	6,300
SWAZILAND	528,000	5,280
GAMBIA	493,000	4,930
CAPE VERDE ISLANDS	360,000	3,600
COMOROS	344,000	3,440
EQUATORIAL GUINEA	290,000	2,900
DJIBOUTI	125,000	1,250
SAO TOME AND PRINCIPE	76,000	760
SEYCHELLES	59,000	590

APPENDIX VII

BRAILLE CAPABILITIES

BRAILLE CAPABILITIES

ALGERIA

The country has two thermoform machines and wants a stereotyper. The three schools for the blind have a total enrollment of 130 students.

CAMEROON

A center for the blind teaches braille and handicraft work.

EGYPT

A regional press has been in existence in Egypt since 1955. It was set up by the UN and HKI. Only Egyptian material is produced.

ETHIOPIA

Ethiopia has three schools for the blind.

IVORY COAST

The country has an organized blind school with German thermoform machines.

KENYA

Kenya has three schools for the blind and a total of 110 students and produces braille on thermoform machines.

LESOTHO

A special school has been established to teach braille to blind children who then join a public school.

LIBERIA

A grant from the U.S. assists in the teaching of the blind. HKI has set up an integrated program and residential school with a total enrollment of 70. There are two thermoform machines in the country.

LIBYA

Libya has two thermoform machines in two schools for the blind.

MALI

There are thirty to forty students in the schools for the blind in Mali. Ismaili Koneti is the WCWB representative who is trying to organize all the African countries into a Committee for the Blind.

MOROCCO

Braille production is done on an Italian made press in Rabat. There is also a Marburg stereotyper and at least two thermoform machines in the twenty-three schools for the blind.

MOZAMBIQUE

There is one school for the blind with twenty pupils and one thermoform machine.

NIGERIA

Nigeria has a stereotyper and a program to help blind farmers.

SENEGAL

HKI has started an integrated program which has done well.

SOUTH AFRICA

The Worcester School for the Blind has a braille press. An Africaans writing system is in use. The Grahamstown Library for the Blind circulates braille books. The B.W.O. does braille transcriptions for Bantu schools. Braille has been done in five Bantu languages.

TUNISIA

The best developed program exists in Tunisia where there are two stereotypers, two presses, and four thermoform machines.

ZAMBIA

The Institute Lumiere in Bir Kassaa has been printing braille since 1963.

APPENDIX VIII

QUESTIONNAIRE AND RESPONSES

NATIONAL LIBRARY SERVICE FOR THE BLIND AND PHYSICALLY HANDICAPPED

THE LIBRARY OF CONGRESS

WASHINGTON, D.C. 20542

1291 Taylor Street, N.W.
Area Code 202-882-5500
TWX 710-822-1969

QUESTIONNAIRE

1. How many blind individuals are in your country?

2. What is the average educational level of the sighted people in your country?

3. What is the average educational level of blind people?

4. What type of library services are provided for the sighted populace?

5. What type of library services are provided for the blind populace?

6. Is there a braille producing facility in your country?

   Where is it?

   What is its output (in volumes)?

   What language is produced in braille?

7. Do you have an out-of-country source for braille materials?

8. Are there any special student or professional sources available for blind individuals?

9. Are you interested in the concept of a central braille production source for Africa?

Any other information you can identify which would be of interest to us would be appreciated.

☐ Check here if you are interested in receiving a final copy of this report.

Please return this questionnaire to:

Mr. Marc Mayer
Project Officer
National Library Service for the
Blind and Physically Handicapped
Library of Congress
Washington, D.C. 20542
U.S.A.

1/30/79

THE ZAMBIA COUNCIL FOR THE HANDICAPPED

Tel 74470/74584/74565/74566

All Correspondence
should be addressed to
General Secretary

P.O. BOX RW. 73
RIDGEWAY
LUSAKA

ZCH/0/6

27th February, 1979.

Mr. Mare Myer,
Project Officer,
National Library Service for the Blind and
Physically Handicapped,
Library of Congress,
Washington D.C. 20542, U.S.A.

Dear Sir,

Thank you very much for your letter of the 31st January, enclosing a questionnaire on the above subject.

In addition to the information furnished in the questionnaire, enclosed herewith, we have the following information:-

(1) According to the 1969 Population Census, there are nearly 10,000 blind Persons in Zambia. This number might have increased considerably by now.

(2) Form V, an equivalence of General Certificate of Education "O" Level, may be said to be the average standard of education in this country. We have more than sixty territorial districts and there is at least one secondary (high) school in each of the districts. In addition, we have one University, with the intake capacity of more than 3,000 students.

(3) Grade VII (Upper Primary School Certificate) is the average standard of education of blind persons. There are seven primary schools for the blind in the country and six secondary school units for the blind in ordinary secondary schools. There is no discrimination against blind students wishing to enter the University of Zambia, although study materials are not available to them in Braille. Currently there are six blind students at the University.

(4) The main type of the library service in this country is educational, including social sciences, technology and natural science. There is at least one library in each urban district and at least one public library in each territorial province.

(5) There is no library service for the blind in the country; nor are there sellable Braille books for higher students.

(6) We have a Braille Press here run by this Council and housed at the Government Printing Department in the capital city, Lusaka.

The only source of our Braille books has been England. We have been buying the books from the Royal National Institute for the blind; but the books are very expensive, in addition to our country's foreign currency problem.

/2.....

(8) Apart from the educational facilities indicated above, aspiring blind students enrol with international correspondence colleges, like the Rapid Results College. This College undertake the transcription of courses into Braille in the United Kingdom, through the Voluntary Transcribers' Group of the Royal National Institute for the Blind.

(9) The idea of establishing an internationally supported central Braille printing press for Africa is more than welcome. Unless this objective is achieved the blind population of Africa will ever remain behind in all aspects of life hinged on education.

We look forward to receiving a copy of your final report and wish you you all the success.

Under our National Programme of the International Year for Disabled Persons we are seriously contemplating the introduction of a national library on a small scale, with a view to developing it further. Our intention is to appeal to English Braille Publishers, Braille libraries and individual blind readers throughout the English speaking world to support our cause materially and morally.

Yours truly,

J.G.N. Mutale,
for/GENERAL SECRETARY.

NATIONAL LIBRARY SERVICE FOR THE BLIND AND PHYSICALLY HANDICAPPED

THE LIBRARY OF CONGRESS

WASHINGTON, D.C. 20542

1291 Taylor Street, N.W.
Area Code 202 882 5500
TWX 710 822 1969

THE LIBRARY OF CONGRESS FOR THE HANDICAPPED
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REFERENCE SECTION

QUESTIONNAIRE

1. How many blind individuals are in your country?
   More than 10,000

2. What is the average educational level of the sighted people in your country? Form V (Senior Secondary Schools Certificate)

3. What is the average educational level of blind people?
   Upper Primary School Certificate

4. What type of library services are provided for the sighted populace?
   All (Educational) Public and International Libraries

5. What type of library services are provided for the blind populace?
   Nil

6. Is there a braille producing facility in your country?
   Yes

   Where is it?
   Government Printing Department, Lusaka

   What is its output (in volumes)?
   Not known

   What language is produced in braille?
   Mainly English

7. Do you have an out-of-country source for braille materials?
   Yes (The U.K. and Switzerland)

8. Are there any special student or professional services available for blind individuals? Nil

9. Are you interested in the concept of a central braille production source for Africa?

YES

Any other information you can identify which would be of interest to us would be appreciated.

☑ Check here if you are interested in receiving a final copy of this report.

Please return this questionnaire to:

Mr. Marc Mayer
Project Officer
National Library Service for the
Blind and Physically Handicapped
Library of Congress
Washington, D.C. 20542
U.S.A.

UNION NATIONALE
DES
AVEUGLES DE TUNISIE
Reconnue d'intérêt National

Sous la Présidence d'honneur
de Madame
WASSILA BOURGUIBA

Tunis, 2nd APRIL, 1979.

0924

Dear Mr. MAYER

I would like to apologize on delay putted to reply to your letter of January 31, because I was outside my country for mission.

I have enjoyed the idea to establish a Central Braille production for African countries, but I would like to notify to you that our organisation has since 1963 a Printing which still serve the African countries by printing to them on their asking scolar books in braille, and also we have taken a big part during the International Year of Books by printing more than 10.000 manuals.

Please find enclosed and duly full filed your questionary.

In staying at your disposal for any information that you need, I remain

Sincerely yours
Mohamed RAJHI
Secretary General

UNION NATIONALE DES AVEUGLES DE TUNISIE

Mr Marc MAYER
Project Officer
THE LIBRARY OF CONGRESS
1291 Taylor Street N. W.
WASHINGTON D. C. 20542
-U S A -

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NATIONAL LIBRARY SERVICE FOR THE BLIND AND PHYSICALLY HANDICAPPED

THE LIBRARY OF CONGRESS

WASHINGTON, D.C. 20542

1291 Taylor Street, N.W.
Area Code 202-882-5500
TWX 710-822-1969

QUESTIONNAIRE

1. How many blind individuals are in your country? 18.000 Blind

2. What is the average educational level of the sighted people in your country? End of secondary study

3. What is the average educational level of blind people?
End of secondary study

4. What type of library services are provided for the sighted populace?
written books

5. What type of library services are provided for the blind populace?
Braille books and Talking Books

6. Is there a braille producing facility in your country? Yes a Printing in the Institut "LUMIERE" for young Blind in Bir Kassaa , fonctioning since 1963

Where is it?

What is its output (in volumes)? per /year 12.500 books

What language is produced in braille? Arabic /French /English

7. Do you have an out-of-country source for braille materials? Yes, the majority of the African Countries and from Middle East, and during the International Day of Book, we have printed 10.000 and distributed to many african countries as a gift from Tunisia

8. Are there any special student or professional sources available for blind individuals? Yes but we have persons who are working full time in view to record talking books from Blind

A 32

9. Are you interested in the concept of a central braille production source for Africa? Yes ;but I would like to notify that services render by our printing increases because we still print scolar books to african countries and from middle east

Any other information you can identify which would be of interest to us would be appreciated. We have in Tunis and African Center for Training high qualified Staff in Education and Rehabilitation of the Blind, at the end of their studying take with them a lot of braille matérial and basical scolar books wich can allow to them to start a first classe or school in their countries or to strengthen those existing.

Please find enclosed some photos of our printing .

[x] Check here if you are interested in receiving a final copy of this report.

Please return this questionnaire to:

Mr. Marc Mayer
Project Officer
National Library Service for the
Blind and Physically Handicapped
Library of Congress
Washington, D.C. 20542
U.S.A.

THE SOUTH AFRICAN LIBRARY FOR THE BLIND
DIE SUID-AFRIKAANSE BIBLIOTEEK VIR BLINDES

W.O. 126

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DIAMOND JUBILEE
◈ 1919 – 1979 ◈
DIAMANT JUBILEUM

Bannerman House/Huis Bannerman,
High Street/Straat,
P.O. Box / Posbus 115,
GRAHAMSTOWN/GRAHAMSTAD,
6140

20th February, 1979.

Mr. Marc Meyer,
Project Officer,
National Library Service for the Blind,
Library of Congress,
1291 Taylor Street, N.W.
Washington D.C. 20542.
UNITED STATES OF AMERICA.

Dear Mr. Meyer,

Thank you for your letter dated 31st January, and the attached questionaire. As the space on the form is rather limited, we have take the liberty of re-typing the questions together with rather fuller answers than we could have provided otherwise. We hope the additional information thus included will prove interesting to you.

Yours sincerely,

P.J.A. de Villiers.
DIRECTOR.

RAAD/COUNCIL
The Hon. Mr. Justice/Sy Edele, Hester Kannemeyer (Chairman/Voorsitter), F. B. Conway (Vice-Chairman/Ondervoorsitter), Prof. J. J. Gerber, B. Gollouton, Prof. J. G. Kestling, Mev./Mrs. G. G. Muanik, Mrs./Mev. T. Neville, W. J. Olckers, T. Pauw, Miss/Mej. H. Smith, Dr. F. G. van der Riet.

6. Is there a braille producing facility in your country?

There are three.

(i) Where: (a) Braille Services, Johannesburg.

(b) The School for the Blind, Worcester.

(c) S.A.Library for the Blind.

(ii) What is the output (in volumes)

(a) The equivalent of 7000 volumes, including periodicals and ephemera.

(b) The equivalent of 7500 volumes, including school text books, periodicals, and ephemera. (Note: Production statistics of the above are kept by pages, to arrive at volumes we divided by 72.)

(c) 246 volumes of volunteer-produced special request books only.

(iii) What language is produced in braille?

(a) Afrikaans, English, Xhosa, Zulu, North Sotho, South Sotho, Tswana.

(b) Afrikaans, English.

(c) English.

7. Do you have an out-of-country source for braille materials? Books and magazines in English are regularly imported from Britain and U.S.A. Special student requests are borrowed from Netherlands, Germany and France, if available.

8. Are there any special student or professional sources available for blind individuals? Yes, these are provided by S.A.Library for the Blind,Braille Services and Worcester School for the Blind.

9. Are you interested in the concept of a central braille production source for Africa?
The concept is very interesting, the practicality is very doubtful. The main stumbling block is the multiplicity of languages on the continent, and even in individual countries. In South Africa, for example, we produce braille in seven languages, six of them indigenous. Braille systems for these six have taken from 10 to 20 years to be developed. In Namibia - South West Africa there are nine such languages plus English and German, in Angola and Mocambique there is Portuguese as a second language plus several indigenous languages. This same position pertains in almost every African country south of the Sahara Desert, viz., one European language plus several indigenous ones.

☑ We would be very pleased to receive a final copy of the report.

A56

S.A. LIBRARY FOR THE BLIND

APPENDIX IX

INDEPENDENT EVALUATIONS

Clovernook Home and School for the Blind
7000 Hamilton Avenue
Cincinnati, Ohio 45231
(513) Phone 522-3860

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Gerald W. Mundy, Ed D.
Executive Director

June 8, 1979

Mr. Marc Mayer, Project Coordicator
LIBRARY OF CONGRESS
NLS f/t Blind & Phys. Hdcp.
Washington, D. C. 20542

Dear Mr. Mayer:

I received your report on Cost Analysis for the Central Braille Facility in Africa, a very detailed survey. The only point I could answer to is the Press Braille production. My estimates are based on 25 books with approximately 300 pages in braille each, in five languages in a period of one year.

II Press Braille

A. Personnel

1. Reader/Proofreader: Suggested minimum number of readers--OK.

2. Inputter: 37,500 pages to be transcribed. One (1) transcriber transcribes about 5,000 pages per year. Therefore at least seven (7) transcribers are needed.

3. Inputter (Alternate Method): Same number of seven (7) transcribers are needed.

4. Proofreaders: If proofreading is done with a copyholder, at least five (5) persons are needed to handle all five (5) languages.

5. Duplicating Machine Operators: Two press operators will be needed if bindery has to be done by the same person.

Continued.

ESTABLISHED IN 1901 BY GEORGIA D. AND FLORENCE P. TRABER

B. Equipment

1. Stereotype Machine: Each transcriber needs one machine, therefore, seven (7) stereotype machines are needed. The rebuilt machine at Clovernook mentioned in your survey is not a stereotype machine. It is a "Heidelberg" printing press.

2. Duplicating Press: For short runs of 25 copies, an automatic press like the "Heidelberg" is not advisable. A hand-operated press should be used. Two hand-operated presses are needed. There should be used presses available and the cost per press should not be more than $5,000.00 each, including conversion to braille press.

3. Binding Machines: Estimated costs look OK.

4. Cassette Recorders: At least three (3) recorders should be available. The cost each approximately $500.00.

5. Proof Press: Since proofreading cannot be done on plates, a roller type proof press is needed, approximately $1000.00.

C. Material

1. Zinc plates for stereotype machines: 18,700 zinc plates are needed. Present cost $.60 each.

2. Paper cost: Braille paper as used in press operation should not exceed $.01 per sheet.

3. Cassette Tapes: If Norelco recorders are used, cassette costs are $6.00 each, but are reusable more than 100 times each.

4. Binding Covers: Cost of $2.00 seems to be OK.

Continued.

When your report arrived, I was preparing a presentation to be done at the London International Conference and ran short of time. I hope my late reply will be of some help in your survey.

At the meeting in London, I met the delegation from South Africa, who showed much interest in computerized Braille, and at my suggestion, they contacted Mr. Joe Sullivan (Duxbury Systems) about a computerized program. I thought this might be of some interest to you.

Sincerely,

Martin Droege

Martin F. Droege
Workshop Director

MFD/ncm

STATENS INSTITUT
FOR BLINDE OG SVAGSYNEDE

28/5-79

Mr. Marc Mayer
Project Coordinator
Library Service for the Blind
Library of Congress
1291 Taylor Street, N.W.
Washington, D.C. 20542
USA

subject: central braille facility, Africa.

Dear Mr. Mayer,

Thank you for receiving your reports on the above subject.

I do appreciate your systematical study of the cultural, financial and political situation on the African Continent, which presents an indispensable and most valuable base of reference for a presentation and evaluation of the project.

The idea of establishing a central braille production facility serving all (?) African countries appears obvious for a continent which total ressources are very limited - except for actual man-power.

The capital expenditures, training of personel and problems with repair and maintenance of equipment would definitely be reduced with one or a few central places for production of braille material.

However, previous experiences with simular projects, both in this and in other fields, have been rather discouraging. Not only because of political discrepancies but also due to pure practical problems.

The extent of many African countries makes communication and distribution of material within the country it-self very difficult. It can be forseen that the communication with and distribution from a central place of production will be most difficult and unsatisfactory.

You have your-self emphasized the language problem in connection with the project. In most of the developing African countries of to-day young African writers do write in their local languages. In Zambia where I have worked my-self for two years there are five major vernaculars plus some ten of minor ones and more and more written material - including educational one - is edited in these vernaculars

I do fear that such language barriers would be a more source of not only practicle problems in the trancription

continued

and proofreading of books but also a source of nationalistic conflicts.

This point brings up another important question, the one of priority in the current planning of the production.

As all other production systems the capability will be restricted to a certain number of titles and copies per year.

This capability must be shared among a number of countries in accordance with an established agreement.

However, the nations outside the producing country will properly feel that their influence on the production of books and the priority of the order of the production of new titles or copies is very limited.

Furthermore, the flexibility of a centralized system appears to me as too small.

Assuming that a major part of the production will be placed on educational material, once a school has placed its order to a place somewhere thousands of miles away, the possibility of making any changes or additions to such an order during the school-year will probably seem unlikely.

With regard to the financial aspect of a centralized production system one could have a presentiment of a number of complications with the covering of the current expenditures (e.g. wages, import of material, repair and maintenance of equipment).

These costs have to be shared equally among those countries benefiting from the production system. This will undoubtedly give rise to a number of financial problems among the participating countries.

In your "Interim Report" page 1, "Other Considerations" you have already noted a number of factors simular to the ones I have treated above.

Although the overall idea of the project seems reasonable I foresee a number of practicle and administrative problems making the implementation of the project very difficult.

However, since I feel a deep obligation towards this work of assisting blind people in the developing countries I should like to bring forward a proposal for a modification of the project.

Rather than an establisment of a central braille production facility serving a number of countries, I suppost the establisment of braille production facilities for each African country or an improvement of already existing facilities.

.....continued

Mr. Marc Maurer, 79/1-29.

The main reasons for this approach are

(I) each nation will feel more responsible for the service to its blind inhabitants.

(II) it will make each nation more independant, self-reliant and self-sufficient which goes along side with the philosophy of most independant, developing nations.

(III) it extends the possibilities of meeting the individual need for production of braille material of each country.

(IV) the practical and administrative problems as described above will be reduced.

I do not imagine all African nations being provided with the necessary facilities at the same time. One country should be selected for a pilot-project and I agree with your criteria for the selection of an eligible country.

However, Tanzania may not be the right choice due to the fact that, according to my information, they have already a well-functionning braille press in Dar-es-Salaam.

According to your statistics Kenya, Ghana or Ivory Cost may also be eligible. Another possibility could be Mali. I would support a country with no or very limited braille facilities to be selected.

So far, I have not touched the question of braille production methods. In my opinion it can only be a question of handcopied or press braille production.

The high costs, the question of technical stability, repair and maintenance exclude electronic paperless braille.

Whatever system is chosen (thermoform or stereotype machinery) you will remain with the following problems:

(I) availibility (i.e. import) of raw-materials: metal plates, braille paper, duplicating paper, brailliom, binding material.

(II) availibility of spare parts.

(III) technical expertise for repair and maintenance of the equipment.

(I) and (II) require import license from the government which I experienced great difficulties in obtaining during my work in Zambia due to lack of foreign (hard) currency. It is difficult to imagine how this problem can be solved within the frames of the project unless the whole production should be based on donations; in my opinion an untenable and little satisfactory solution.

Finally is the question of who such a project would serve.

In the short term it will only serve a minority of the blind people for the simple reason that only a minority has been taught to read and write braille.

However, this situation is not different from the one of sighted people in the emerging countries.

From your statistics it even appears that the literacy rate of the blind is higher than the literacy rate of the sighted.

The establisment or improvement of braille production facilities will extend the possibilities of teaching more blind people to read and write so that the project in a long term would serve a larger group af blind readers.

In my evaluation, criticism and proposed modification of the draft of the project I have endeavoured to be as realistic as possible. It may - in your eyes - have turned out to being only negative which, by no means, has been my intention.

In case I can be of any assistance in the further planning of the project, please do not hesitate to contact me.

Sincerely yours,

Paulli Thomsen
Student Counsellor

ROYAL NATIONAL INSTITUTE FOR THE BLIND

INCORPORATED BY ROYAL CHARTER

PATRONS: HER MAJESTY THE QUEEN, HER MAJESTY QUEEN ELIZABETH THE QUEEN MOTHER

224-8 9 GREAT PORTLAND STREET LONDON W1N 6AA ENGLAND

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YOUR REF.

OUR REF. SG/EJV/ES.

22nd May, 1979.

Marc Mayer, Esq.,
National Library Service for the
Blind and Physically Handicapped,
The Library of Congress,
1291 Taylor Street, N.W.
WASHINGTON, D.C. 20542,
U.S.A.

Dear Mr. Mayer,

Thank you for your letter of the 1st May, and having read the reports I would mention the following observations:-

The initial stage in the production of a braille book, magazine, etc. lies in the editing of the sighted version, in order to provide instruction to the transcriber on matters of format, difficult texts, special use of contractions, etc., this appears to have been omitted in the report with respect to personnel requirements.

All three production methods quoted state that the initial step in transcribing a book into braille is the reading of that book on to cassette. There is no explanation of that statement and I consider this stage may be completely unnecessary as is the introduction of audio cassette recorders and playback machines anywhere in the system.

A sighted transcriber (inputter) quoted as an alternative transcribes direct into braille from the sighted book and should be regarded as the most economic method of generating an embossed page or plate. Otherwise a blind transcriber can produce braille from text read to him by a sighted reader but this is not mentioned in the report. This combination of reader and braillist provides the blind person with the most important facility of inter-action with the reader in asking questions about the text; it avoids the unnecessary hunting through a recorded tape, backwards for repeats, or forwards for instance to establish how much text is still to come in a paragraph, presumably using a foot controlled playback machine. I think it is likely to be more efficient than using a cassette approach.

The cost of the audio cassette recorders, audio cassettes and playback machines could,therefore, be avoided and could be obviated to the advantage of any proposed system, together with their potential maintenance problems.

Continued.....

Marc Mayer, Esq. 22nd May, 1979.

Similarly I am rather surprised that method III, Paperless Braille is being considered as prime equipment for a braille production system in geographical situations of high humidity and possibly somewhat doubtful cleanliness. Apart from the cost one can anticipate considerable maintenance difficulties and the comments I have heard to date about Braillex, Versabraille and the Elinfa Digicassette, indicate that the very limited braille displays render them unsuitable for lengthy reading periods of continuous text.

Yours sincerely,

E. J. Venn.
Deputy Director-General.